

POOR LEGIBILITY

**ONE OR MORE PAGES IN THIS DOCUMENT ARE DIFFICULT TO READ
DUE TO THE QUALITY OF THE ORIGINAL**

U.S. Environmental Protection Agency Region IX
Hazardous Waste Management Division
Field Operations Branch

Field Sample Plan

Victoria Golf Course
340 E. 192nd Street
Carson, CA 90746
Site EPA ID Number CAD 980818926
Sampling Dates: December and January 1996/97

RECEIVED

MAY 26 1998

SFUND RECORDS CTR

SFUND RECORDS CTR
2388333

Prepared by:
California Environmental Protection Agency
Department of Toxic Substances Control, Region 4
245 W. Broadway, Suite 350,
Long Beach, California 90802-4444

Submitted August 27, 1996
Revised October 29, 1996
Revised November 28, 1996
Revised December 6, 1996
Revised January 21 1997
EPA Project Manager: Rachel Loftin,
Phone: (415) 744-2347
QAPjP Approval Date: February 23, 1996

For EPA use:

Received by Superfund Project Manager: _____

Date: 2/4/97 RL

cc: BSI
QAMS

Reviewed by: _____

Date: _____

Status: ☐ Approved

☐ Not Approved

Expedited Review? ☐ Yes

☐ No

Received by QA Management Section: _____

Date: _____

Reviewed by: _____

Date: _____

Status: ☐ Approved

☐ Not Approved

Concurrence: _____

Date: _____

Chief, Quality Assurance Management
Section Environmental Services Branch,
OPM

1.0 OBJECTIVES OF SAMPLING EFFORT

The California Department of Toxic Substances Control (DTSC) will conduct this field sampling effort to gather data as part of a Expanded Site Investigation (ESI) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). The ESI builds upon the body of information during the Preliminary Assessment (PA), Site Inspection (SI) and Site Inspection Prioritization (SIP), collecting additional data through a site reconnaissance visit, and collecting physical environmental samples to analyze for the presence of hazardous substances.

Field sampling will be conducted under protocol accepted by the U.S. Environmental Protection Agency (EPA) as specified in the Preparation of a U.S. EPA Region IX Sample Plan for EPA-Lead Superfund Projects guidance document (Quality Assurance Management Section, U.S. EPA, Region IX, August, 1993) and the programmatic Quality Assurance Project Plan, (QAPjP) approved by the EPA on February 23, 1996. Laboratories participating in the EPA Contract Laboratory Program (CLP) will be utilized for analyses. Laboratory services will be obtained and coordinated through the EPA Quality Assurance Management Section (QAMS).

The site being investigated is the Victoria Golf Course site (VGC) EPA ID Number: CAD 980818926 in Carson, Los Angeles County, California. The VGC site was developed over the former Ben K. Kazarian (BKK) Carson Dump, a Class II and III landfill that operated from 1948 to 1959. The BKK Carson Dump (or VGC site) accepted municipal, industrial and hazardous wastes, including liquid and semi-liquid hazardous wastes. The objective of DTSC's sampling effort is to determine the presence and measure the concentrations of contaminants in groundwater at the site and to establish whether such contaminants are attributable to the site. In addition, hydraulically upgradient groundwater will be sampled to establish background concentrations. These data will be used to support decision-making efforts by the EPA as part of the ESI.

2.0 BACKGROUND

2.1 Location

The VGC site is located at 340 East 192nd Street in Carson, California 90746. The geographic coordinates of the site are 33° 51' 26.0" N latitude and 118° 16' 22" W longitude (Township 4 South, Range 13 West, Section 5, Mount Diablo Baseline and Meridian, Torrance, Quadrangle, Calif., 7.5-minute quadrangle). The location of the site is shown in Figure 2-1.

The VGC site is approximately bounded by the Victoria Regional Park to the north, Avalon Boulevard to the east, Del Amo Boulevard to the south and S. Main Street to the west. The exact boundaries of the waste disposal at the VGC site are not clearly defined.

2.2 Site Description

The VGC site occupies 348-acres in a mixed recreational, commercial, residential and industrial area. The landfill is closed and is now overlain by Victoria Golf Course, a portion of the Victoria Regional Park, Dominguez Golf Center, Goodyear Airship Operations, Jael Farms and the 65-unit Don Dominguez Apartments. This entire site is called the Victoria Golf Course site although the "Victoria Golf Course" recreational business is only a portion of the whole site.

The VGC site is bordered on the north by single family dwellings, the remaining portion of the Victoria Regional Park and the Towne Avenue Elementary School. To the west of the site is an area of light industry and the Goodyear Airship Operations. To the east of the site are single family dwellings and California State University at Dominguez Hills. The VGC site is bisected by the 405 Freeway and the unlined, earthen Dominguez Channel (See Figure 2-2 Site Layout). The concrete lined Del Amo Channel borders the south portion of Victoria Golf Course along Del Amo Boulevard.

The area surrounding the VGC site contains an unknown number of abandoned landfills of various sizes and other potential hazardous waste sites (Figure 2-3 Local Landfills). The exact boundaries of the waste burial at the VGC site or BKK Landfill/Carson Dump are not clearly defined. The following areas which are shown in Figure 2-2 make up the entire VGC site.

- a. Dominguez Golf Center currently consists of a restaurant / pro shop, golf course, practice range and grounds keeping area. In 1995, new fence poles with netting along the east and south perimeter of the DGC were installed and the practice center was renovated with a two level golf driving range structure. The parking lot, walkways and golf cart paths are mostly paved with asphalt type of material. The remainder of the driveways, paths and bases are made of concrete. The golf playing areas are mainly constructed of OmniGreen and bermuda grass sod.
- b. Victoria Golf Course (recreational business which is a subsystem of the VGC site) consists of a restaurant, golf shop, rest room structures, maintenance building and golf course. Building permits for the site at the County of Los Angeles Department of Building and Safety indicated that the site has been used as a golf course since 1964. The driveways, parking lot, a majority of the walkways are constructed with asphalt type of material. All remainder driveways and walkways are constructed of non-reinforced concrete. The golf cart paths are constructed of 2 inch thick asphalt concrete surface and the base of the cart path is a 3 inch thick blend of crushed rock and rock dust. The ground surface areas are constructed of grass sod, fill and soil.
- c. The Don Dominguez Apartments consist of an apartment building, carports, swimming pool, parking lot and common areas. The majority of the parking area, roads and walkways around the apartments are constructed with asphalt. The remainder of the walkways, carports (slabs), common areas, pool area and swimming pool are constructed of concrete.

Some of the common areas and landscape areas are covered with grass and soil which contain some gas monitoring probes and equipment.

d. Goodyear Airship Operations (GAO) consists of a airship base landing area, two pre-fab buildings, a office-trailer and a make shift shed for storing hazardous materials. The trailer is used as an office with restrooms. The parking lot, the majority of the roads, driveways and walkways are constructed of asphalt concrete. The majority of the landing base is lawn grass and the remaining areas are dirt and soil.

e. A portion of the Victoria Regional Park consists of tennis courts, picnic area and park grounds. Most of the parking lots, walkways, and the driveways are constructed with asphalt type material and the remainder with concrete. The benches and picnic tables of the picnic area are located on a 5-inch non-reinforced concrete slab with remaining facilities being placed on a 3 inch thick layer of "rock dust". All improvements of the picnic areas are located over 2 inches of sand layer with 2 feet of compacted earth materials beneath.

f. Jaeil Farms is mainly a vegetable nursery covered by soil.

Del Amo Boulevard is located outside the landfill and forms the southern boundary of the property. Three underground fuel lines, operated by Chevron, Shell, and UNOCAL, are located along or beneath Del Amo Boulevard.

2.3.1 Ownership

In a December 6, 1955 correspondence the BKK Landfill was also identified as the Main Street Dump, and was located east of Main Street and situated on the south side of the Dominguez Channel which is now the VGC site. This land was owned by the Dominguez Land Co. and was utilized as a public dump under lease to the B.K.K. Co. from 1953 until 1955. The property which contained the B.K.K. Carson Dump was originally owned by Del Amo Estate Company and was leased by B.K.K. Incorporated. In July, 1957, the County of Los Angeles acquired from the Dominguez Estates Company, approximately 209 acres of land now designated as Victoria Regional Park.

Currently the properties included on the VGC site are owned by the Watson Land Company (a general partner with the Carson Estate Company) or one or its subsidiaries, the Watson Land Sales, Dominguez Properties (BKK), Mr. Price E. Evans, the Goodyear Tire & Rubber Co., and the County of Los Angeles.

The 200-acre Victoria Golf Course (business) property is owned by the County of Los Angeles Department of Parks and Recreation (DPR), and is leased and operated by the Arnold Palmer Golf Management Company. The Victoria Regional Park is owned and maintained by the DPR. The Dominguez Golf Course is owned by the Watson Land Company and the Dominguez Properties and leased and operated by the American Golf Corporation, C.W. Partners. The GAO Site is owned and operated by the Goodyear Tire & Rubber Company of Akron, Ohio. The Don Dominguez Apartments are on land owned by the Watson Land Company, but the ownership and operation is by a unknown private party, Mr. Price E. Evans of Orange County, California. The Jaeil Farms (small family vegetable

grower) is operated by Mr. Lee Jaeil of Hawthorne, California on land owned by the Watson Land Company. The San Diego Freeway (405) is owned by and maintained by the California Department of Transportation (CALTRANS). The Dominguez Channel and the Del Amo Channel are owned by the County of Los Angeles, Flood Control District and maintained by the County of Los Angeles, Department of Public Works, Flood Maintenance Division.

2.3.2 Past Operations / Waste Management Practices

The VGC site was developed over the former Ben K. Kazarian (B.K.K.) Carson Dump, a Class II and III landfill that operated from 1948 to about 1959. The BKK Carson Dump accepted municipal, household, commercial and hazardous wastes, including liquid, semi-liquid hazardous wastes. The waste types were not regulated as to what could be dumped at the site.

2.4 Previous Investigations

2.4.1 Soil Sampling.

A Environmental Site Remediation Report for the Dominguez Golf Course dated February, 1995 was prepared by Maness Environmental Services Inc. (Maness) of Long Beach, California for the American Golf Corporation under the lead of the City of Carson. The actions described in the report consisted of the preparation of an excavation management plan according to South Coast Air Quality Management District (SCAQMD) Rule 1150, air emission monitoring during pole excavations (excavated to an unknown depth). 42 poles were excavated with the spoils going to only two piles. One sample from each spoil pile was taken and analyzed for metals. The excavations were completed by Fremont Associates-Construction of Torrance, California and new fence poles were installed around the perimeter of the driving range. Moderate concentrations of metals were detected in both samples. However, the lead analysis detected elevated concentrations of 63 parts per million (ppm). Although there is analytical data indicating the presence of hazardous substances in soil, it is unknown at this time if the data are of adequate quality for HRS purposes.

2.4.2 Groundwater Sampling.

No groundwater sampling is known to have been conducted on the VGC site. However:

In Aug 1995, Brown & Root developed a Remedial Action Plan (RAP) for the Cal Compact Site, which is directly south of the VGC site, for BKK Inc. Groundwater at the Cal Compact Site was found to be contaminated with VOCs, SVOCs and metals. The highest total VOC detected was about 50,300 ppb. The highest concentration of SVOCs was Naphthalene at 910 ppb. The highest metal concentration was Aluminum at 160 ppm. VOC iso concentrations at Cal Compact are shown in fig. 3-2.

2.4.3 Air Sampling.

An Air Quality Solid Waste Assessment Test (SWAT) Report dated November, 1988 was conducted by SCS Engineers of Long Beach, CA for the County of Los Angeles at the Victoria Golf Course and Regional Park portion of the VGC site. On 2/23/88, landfill gas test samples taken from a perimeter methane probe located approximately on 192nd St. probe number IV-5 detected vinyl chloride at a concentration of 2,290 ppb by volume, benzene at 1413 ppb by volume, perchloroethylene (PCE) at 11 ppb by volume, trichloroethylene (TCE) at 136 ppb by volume and methane at 44.7% (v/v). Another perimeter methane gas probe IV-6 also located on 192nd St. detected benzene at 651 ppb by volume, PCE at 38 ppb by volume, TCE at 90 ppb by volume and methane at 12.7% (v/v).

2.5 Regulatory Involvement

2.5.1 U.S. Environmental Protection Agency (EPA).

The VGC site was entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database on June 1, 1981. The site is not listed in the Resource Conservation and Recovery Information System (RCRIS) database as a hazardous waste generator or TSD facility. A CERCLA Screening Site Inspection (SSI) of the VGC site dated June 22, 1989 was conducted for the EPA by Ecology and Environment, Inc. A Site Inspection Prioritization (SIP) of the VGC site dated March 23, 1994 was conducted for the EPA by Bechtel Environmental, Inc. (BEI).

2.5.2 Department of Toxic Substances Control (DTSC).

The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) (formerly known as the Department of Health Services, Toxic Substances Control Division) Property Evaluation Unit (PEU) developed a report titled Summary -- BKK, Carson, dated July 21, 1982, of the VGC site. This report summarized waste characteristics, hydrogeology, landfill problems and soil, air and public health issues. This report recommended further analysis of the soil, groundwater and air at the VGC site.

2.5.3 Regional Water Quality Control Board (RWQCB).

The California Environmental Protection Agency, Regional Water Quality Control Board, Los Angeles Region (formerly known as the California Regional Water Quality Control Board, Los Angeles Region) has had limited involvement with the site since it requested the submission of a groundwater SWAT Proposal from BKK Corporation in 1988. To date, the RWQCB has not received the final groundwater SWAT. The VGC site is not an active RWQCB Site.

2.5.4 County of Los Angeles

Since 1980, the County of Los Angeles, Department of Public Works (DPW) has routinely tested for subsurface methane migration at the site. Results of the tests are reported quarterly to the Los Angeles County Board of Supervisors and the City of Carson under agreement with the City of Carson as a part of the Methane Gas Monitoring Carson Project - 301. Also the County of Los Angeles, Department of Health Services, Solid Waste Management Program, Bureau of Environmental Protection Environmental Health (SWMP) has monitored perimeter subsurface methane migration at the Victoria Golf Course and the site.

The County of Los Angeles, DPR and the Arnold Palmer Golf Management Company have proposed the initiation of an environmental study at the Victoria Golf Course. The purpose of the study would be to investigate alternatives for improving the irrigation system, determining the boundaries of the former BKK Carson Dump, re-landscaping the golf course, and researching the possible installation of a groundwater monitoring and gas collection and monitoring system. A comprehensive, complete agreement and document still needs to be completed and submitted to the respective agencies for review, comment and approval.

2.5.5 South Coast Air Quality Management District (SCAQMD)

An Air Solid Waste Assessment Test (SWAT) Proposal for the Former Class II Landfill for the VGC site was submitted to the SCAQMD; which was prepared for the BKK Corporation of Torrance, California by Meredith/Boli & Associates, Inc. and dated January 21, 1991. This SWAT needs to be implemented and coordinated with the SCAQMD. The SCAQMD has urged the DPR and the Arnold Palmer Golf Management Company to involve the Local Enforcement Agencies (LEA), the RWQCB, DTSC and the EPA in their scope of work, compliance and engineering issues at the VGC site.

2.6 Apparent Problem

The apparent problems at the site are:

The site came to the attention of EPA in 1983, when the County of Los Angeles submitted a CERCLA (103) Notification for the Victoria Golf Course. The landfill operated under various County Engineer Permits from 1948 to 1959. Because the site is known to have received hazardous wastes, the city of Carson requested that DTSC examine and determine whether or not the development of certain "border zone property" (property which is within 2000 feet of a significant disposal of hazardous waste) constituted a significant health hazard. A PEA assessment was requested on behalf of Butler Housing Corporation which desired to construct a 324-unit condominium complex on a 17.5 acre plot within 2000 feet of the site. The condominium complex was not built.

A screening site inspection (SSI) of the VGC site was conducted for EPA by Ecology and Environment, Inc. in 1989. A site inspection prioritization (SIP) of the VGC completed

by Bechtel Environmental, Inc. (BEI) dated March 23, 1994 and several other investigations by other agencies have stated the following problems:

1. Vinyl chloride, benzene, perchloroethylene (PCE), and trichloroethylene (TCE) were detected in gas samples collected at the VGC site in 1988 and reported in the Air Quality Solid Waste Assessment Test Report dated November, 1988 by SCS engineers. These gas results were taken at the perimeter gas monitoring probes IV-5 and IV-6 (located approximately on 192nd St. by the Victoria Park picnic area and the tennis courts) maintained and read by the County of Los Angeles, Department of Public Works.
2. The groundwater SWAT proposal dated in 1988 estimated that three million to five million tons of waste were deposited at the former landfill on site.
3. Monitoring of methane gas probes around the site revealed readings over 100% of the lower explosive limit (LEL). A 1994 inspection of the VGC site, documented in a September 21, 1994 letter by the SCAQMD, showed readings of up to 10,000 ppm from an OVA calibrated with methane. These readings exceed the instantaneous limit of rule R-1150.2 which is 500 ppm. These readings also indicate significant gas generation with the landfill.
4. The Bellflower Aquitard is less than 90 feet below ground surface (bgs) at the site and is in hydrogeologic connection with the Gage Aquifer, which is interconnected with both the Lynwood and Silverado Aquifers, the primary drinking water aquifers.
5. No comprehensive air, waste, cover, soil or ground water sampling is known to have been conducted at the VGC site.
6. In 1995, based on a previous laboratory testing for soil samples collected from the stockpiles at the Dominguez Golf Course, lead was detected at elevated concentrations of 63 ppm. Volatile and semi-volatile organics were not present above the laboratory detection limits. These results are in the Environmental Site Remediation, Dominguez Golf Course Report, prepared by Maness Environmental Services Inc., February 8, 1995. This testing was not conducted under DTSC's oversight.

3.0 HAZARD RANKING SYSTEM (HRS) FACTORS

The HRS is a scoring system used to assess the relative threat associated with actual or potential releases of hazardous substances from sites. It is the principal mechanism EPA uses to place sites on the National Priorities List (NPL). The quality of the data obtained from sampling and analysis at a site must be sufficient to meet the criteria for usage in the HRS, in accordance with the data quality objectives (DQO) documented in the Guidance for Data Usability in Site Assessment, Interim Final, January 1993, U.S. EPA Office of Emergency and Remedial Response.

3.1 Waste Characteristics

There are no detailed records of wastes disposed of at the site. Only permits allowing the disposal of almost all types of wastes are available. Some hazardous substances have been detected (metals) at the site but they are not quantified. Soil samples will be taken to document the presence of hazardous substances at this site. Groundwater samples will also be collected to determine if the waste contaminated underlying shallow groundwater. Both soil and groundwater samples will help determine attribution.

3.2 HRS Pathways

Based on previous independent reports, historical documents and the ESI investigation, the following media may have been impacted by a release from the VGC site:

- Soil
- Groundwater

3.2.1 Soil

There has not been any known comprehensive soil investigation conducted at the VGC site. Soils at the site have been previously sampled to an unknown degree of accuracy and hazardous substances have been detected. Soils have been found to contain metals, volatile organic compounds (VOCs) and semi volatile compounds (SVOCs).

Subsurface soil samples will be collected during this sampling event to determine the presence of hazardous substances in onsite sources and to establish attribution of hazardous substances in groundwater to onsite sources. No data on cover or fill material is available. The sites are not lined and do not have have engineered caps. Personal contacts remember "around five feet" of dirt placed on top of the dumps. Samples depth will be adjusted in the field to avoid sampling fill.

3.2.2 Groundwater

Perched groundwater beneath the site is reported to range from 19 to 21 feet bgs. This water zone is considered to be semi-perched or perched. The first aquifer (Bellflower) beneath the site is approximately 80 feet bgs. Groundwater appears to flow to the southwest beneath the site (fig. 3-3). Geologic materials from the surface to 80 feet bgs consist of sandy silt and sandy clay. The onsite landfill was permitted to accept hazardous and industrial wastes. Groundwater in the Bellflower aquifer may contain volatile organic compounds, semi-volatile organic compounds and metals. There are five municipal drinking water systems within 4 miles of the site.

3.3 Sampling Recommendations

The general objective of the ESI is to gather data to support the HRS ranking, with the specific objective of determining if groundwater at the site has been impacted as a result of previous disposal activities and if soils are contaminated, for attribution.

The sampling strategy is to perform a Cone Penetrometer Test (CPT) survey to accomplish the following tasks: (a) determine site stratigraphy, including the location of water-bearing zones, (b) determine groundwater elevations and calculate flow direction therefrom, and (c) collect groundwater samples from discrete intervals, and (d) to take soil samples in the same areas to determine attribution of hazardous constituents to the site. Eight (six soil and groundwater and two soil only) CPT survey locations at the VGC site (Figure 3-1) have been selected. These locations were selected based on aerial photographs, historical reports and field observations. Data from the CPT survey will be evaluated together with data from the Cal Compact site (located immediately south of VGC) to generate a clearer picture of the site stratigraphy, hydrogeology and contaminant impact to groundwater. Two additional CPT locations are for soil samples only.

In addition, two groundwater monitoring wells on the adjacent Cal Compact site: GW-1B and GW-2B will be surveyed for water elevations. These two wells are south of the VGC site and are close to Del Amo Boulevard. They will also be sampled to help correlate analytical data from the CPT groundwater samples at VGC. The wells are 90' deep and screened (75-85' groundwater depth) in the upper Bellflower aquifer which is the same interval to be sampled at the CPT locations. The 4" wells have not been sampled since 1993. No recharge data is available.

3.3.1 Soil Sampling

Soil samples will be taken at all CPT locations except #6 and 7. A conference call between DTSC, EPA, QAMS (EPA), and Bechtel took place to discuss adding additional sampling points from the first draft of the FSP. It was determined and agreed at that time that the groundwater contamination would not vary greatly from location to location and would only be present or not present. The main concern was determining attribution from areas 6 and 7 since they may have been operated independently from the other areas and received different wastes. All of the eight locations are adjacent or within known disposal areas as determined by aerial photos. The exact disposal depths are not known, so soil samples will be taken at 10 and 20 feet bgs with the CPT unit and may be adjusted slightly to stay above any perched groundwater or CPT refusal points. The soil only points (6,7), are within a golf course and blimp landing sites and only soil samples will be taken to reduce the amount of time and disruption at each location. Access was difficult to obtain at Goodyear and the golf courses who did not originally cooperate. Groundwater samples are anticipated to take at least 4 hours at each location due to the small diameter of the piezometers, the large amount of water required for EPA samples and the bailing process. This disruption was not acceptable to the property owners and would have required obtaining an inspection warrant which was considered too costly and time consuming to pursue, so only soil samples will be taken at 6 and 7. The Samples will be analyzed for low concentration CLPAS metals, CLPAS VOCs, and CLPAS SVOCs as these constituents are the most prevalent in associated refining, plating and town gas operations previously suspected of using the dump. Sample points

1,2,3,4 are considered background as they are not in known contaminated areas from aerial photos. 5,6,7 and 8 are onsite and in known waste disposal areas.

3.3.2 Groundwater Sampling

Groundwater samples will be collected at six of the eight CPT locations. In each CPT location one interval in the uppermost major aquifer will be sampled for groundwater quality determination (see stratigraphic cross section), about 80 feet bgs. Based on data from the Cal Compact site, the first aquifer is an unconfined zone within the Bellflower Aquitard. If equipment refusal occurs, the locations will be moved several feet to avoid the object causing the problem (large rocks, tires, bricks, etc.) The target interval and the rationale for the sampling are:

The target interval is within the major coarse grained layer. This is the expected zone of maximum flow, where maximum mixing due to advection/dispersion of contaminants is expected. Sampling this zone will allow **detection of contaminants that have may have reached other parts of the aquifer**, keeping in mind the possible effect of dilution. All the locations were chosen to be adjacent or within known waste disposal locations as determined by aerial photos. Gradient approximately follows the site location north to south so sample points 2,3,4 are considered upgradient. Points 1,5,8 are onsite and GW1B and GW2B are downgradient. The area is in a known contaminated basin so there is no clear "background" for groundwater. Samples will be compared to differentiate between upgradient, onsite and downgradient contamination.

At each sampling interval, if conditions permit, potentiometric measurements shall be made to determine the presence of vertical gradients. Samples will be analyzed for low concentration CLPAS metals, CLPAS VOCs, and CLPAS SVOCs as these constituents are the most prevalent in associated refining, plating and town gas operations previously suspected of using the dump. Groundwater samples will also be collected at two Cal Compact wells which will help differentiate between onsite and downgradient (Cal Compact) contamination.

4.0 REQUEST FOR ANALYSES

The VGC site was identified as a potential hazardous waste site and entered into the CERCLIS database in 1983 (CAD 980818926). DTSC will conduct this field sampling effort to gather data as part of an ESI under CERCLA. The anticipated sampling dates for this sampling effort are the first week of December 1996 but will be determined as schedules are finalized. The following samples (including duplicate, QA/QC, and equipment rinsate samples) will be collected and analyzed as part of this effort:

- Twenty five (25) low concentration of groundwater samples including, (9) equipment rinsate blank samples and (16) for CLPAS metals, CLPAS volatile organic compounds and CLPAS semivolatile organic compounds.
- Eighteen (18) low concentration subsurface soil samples for CLPAS metals, CLPAS VOCs, and CLPAS SVOCs.

4.1 Soil Samples

As described in Table 4-1, subsurface soil samples from 10 feet bgs and 20 feet bgs will be taken at 8 locations: SS-1.10, SS-1.20, SS-2.10, SS-2.20, SS-5.10, SS-5.20, SS-6.10, SS-6.20, SS-7.10, SS-7.20, SS-8.10, SS-8.20 and background samples SS-3.10, SS-3.20, SS-4.10, and SS-4.20. Single volume soil samples collected at the following sample locations will be identified to the laboratory for use in laboratory quality assurance/quality control (QA/QC): SS-2.10 and SS-8.10. These samples were chosen as the designated QA/QC samples because they are within or immediately adjacent to the landfill area, which is a suspected source of contamination. Duplicate subsurface soil samples will be collected at the following sample locations: SS-2.10 at CPT 2 and SS-7.20 at CPT 7. These sample locations were chosen as duplicates because they are also within or immediately adjacent to the landfill, which is a suspected source of contamination. As shown in Table 4-1, each subsurface soil sample (including the QA/QC sample) will be analyzed using the CLP for CLPAS metals, CLPAS volatile organic compounds, and CLPAS semi-volatile organic compounds.

4.2 Groundwater Sample Analyses

As described in Table 4-2, groundwater samples will be taken from 6 CPT locations and two existing groundwater monitoring wells(CPTs 1,2,3,4,5,8 and GW-1B, GW-2B): GW-1, GW-2, GW-5, GW-8, GW-9, GW-10, and background samples GW-3 and GW-4.

Double volume groundwater samples collected at the following sample location will be identified to the laboratory for use in QA/QC: GW-2 and GW-8. These samples were chosen as the designated QA/QC samples because they will confirm groundwater contamination upgradient from offsite sources and beneath the site from the landfill area, which is a suspected source of contamination at the site.

Duplicate groundwater samples will be collected from CPTs 4, 5, and 8 (GW-11,27 and 28). CPT 4 and 5 were chosen because they are up gradient and down gradient of the landfill area, which is a suspected source of contamination at the site. Location CPT-8 is immediately beneath the landfill area, which is a suspected source of contamination.

As shown in Table 4-2, each groundwater sample will be analyzed using the CLP for CLPAS metals, CLPAS volatile organic compounds, and CLPAS semi-volatile organic compounds.

4.3 Equipment Rinse Blank Analyses

Equipment rinsate blanks will be prepared as described in Section 8.1. Equipment rinsate samples will be analyzed using the CLP for CLPAS metals, CLPAS volatile organic compounds, CLPAS semi-volatiles. The equipment rinsate blanks will be prepared following the decontamination of groundwater sampling equipment used to collect samples from sample locations most likely to be contaminated. Table 4-2 shows the tentative locations for equipment rinsate blanks. The equipment rinsate blanks will be prepared following the decontamination of sampling equipment used to collect groundwater samples at locations to be determined in the field. A minimum of one equipment rinsate blank will be collected each day that sampling equipment is decontaminated in the field (8 Days).

5.0 METHODS AND PROCEDURES

This section describes the methods and procedures that will be used to collect soil and groundwater samples. All samples will be handled in accordance with approved QAPjP procedures and the chain-of-custody guidelines specified in Section 7.3 and transferred into pre-cleaned containers. The containers will be labeled as described in Section 7.5, sealed with tape, and placed in coolers for transport to the laboratory. Samples will be collected in containers and preserved as specified in Section 7.2. Samplers will don clean, disposable latex gloves at each sampling location.

A site specific Health and Safety Plan addressing all field activities will be adhered to during field work. The H&SP identifies roles and responsibilities, record keeping, site control, personal protective equipment, site monitoring, decontamination, and contingency plans.

5.1 SOIL SAMPLING

Exact soil sampling locations will be determined in the field based on accessibility, visible signs of potential contamination (e.g., stained soils), and topographical features which may indicate location of hazardous substance disposal (e.g., depressions that may indicate a historic excavation). Soil sample locations will be recorded in the field logbook when sampling is completed. A sketch of the sample location will be entered into the logbook and any physical reference points will be labeled. If possible, distances to the reference points will be given.

Subsurface samples will be collected by the use of hydraulic equipment on a direct-push sampling rig (Hydropunch®). Soil samples are obtained using a push in probe, on hollow steel rods, with a retractable tip with standard brass or stainless steel tubes. Once the desired sample depth is reached, an undisturbed soil sample is collected by retracting the tip and advancing the sampling tube. A different, clean sampling (normally a 1" x 6" brass sleeve) tube will be inserted into the soil sampler and used to collect the sample. After sample tubes are filled, they will be immediately sealed with teflon and plastic caps, chilled, and labeled and packed for shipment to the laboratory. If the rig has refusal the location will be moved several feet and tried again. Tires are known wastes in the landfill and can cause refusal.

After the samples have been collected, the sample boreholes will be filled with the excess soil cuttings generated during sampling and with a sealer such as bentonite .

5.2 Groundwater Sampling

Groundwater samples will be collected by the use of hydraulic direct-push-in groundwater sampler (Hydropunch®). Groundwater samples are collected by means of push-in protected screen perforated samplers on hollow steel rods. The push-in water sampler will be pushed into the ground hydraulically to the desired depth. After it penetrates 1 foot below the target depth, the sampler will be pulled back 1 foot to expose the screen to the water-bearing zone. Groundwater can then be collected, down the hollow rods, using a disposable or decontaminated bailer. The CPT rod is 1.5" in diameter and the piezometers will be 3/4".

Submersible pumps will not fit in these small diameters and peristaltic pumps can not pump from depths greater than 50' so bailers are the only option. Reusable groundwater sampling equipment will be decontaminated in accordance with section 5.5. Samples can also be taken in the same manner as the soil samples above, where a limited volume sample is taken by a down hole sampler and retrieved. If the rig has refusal the location will be moved several feet and tried again. Tires are known wastes in the landfill and can cause refusal.

At each sampling location, all bottles designated for a particular analysis will be filled sequentially before bottles designated for the next analysis are. If a duplicate sample is to be collected at this location, all bottles designated for a particular analysis for both sample designations will be filled sequentially before bottles for another analysis are filled. Groundwater samples will be transferred from the bailer directly into the appropriate sample containers with preservative if required, chilled if required, and processed for shipment to the laboratory. When transferring samples, care will be taken not to touch the bailer discharge device to the sample container.

Vials for volatile organic compound analysis will be filled first to minimize aeration of water in the well. The vials will be filled directly from the bailer. The vial will be inverted and checked for air bubbles to insure zero headspace. If a pea-size or larger air bubble appears, the vial contents will be emptied into the measured container, the vial discarded, and a new sample will be collected.

After the samples have been collected, the sample boreholes will be filled with the excess soil cuttings generated during operations with a sealer such as bentonite. In some instances piezometers for future sampling will be installed. All piezometers will be purged to the extent possible. Groundwater influx is expected to be slow and the ability to do extensive purging is limited.

5.2.1 Potentiometric Survey

A critical issue in this survey is the determination of groundwater flow direction. The regional flow direction is known to be southwesterly and this is consistent with the measured flow direction in the Cal Compact site. However, the Dominguez Channel, which is located in the boundary between the Cal Compact and VGC site, is an unlined channel containing water all year round, and therefore a constant source of recharge. It is presently unknown how this recharge is affecting the groundwater flow in this area.

The potentiometric survey constitutes the second phase of the CPT survey. Potentiometric elevations will be measured in all CPT locations by installing piezometers through the hollow CPT rods. Water elevations will be measured with a water level indicator. This method is discussed in Section 5.2.2, Static Groundwater Elevation Measurements.

As part of this investigation, water level measurements will also be conducted at two monitoring wells at the Cal Compact site: GW-1B and GW-2B (Figure 3-1). Water elevations will be correlated with VGC data to determine groundwater flow conditions within and around the site. This will define which of the CPT locations are upgradient and

downgradient of the waste sites, thereby allowing a comparison to determine groundwater impact.

5.2.2 Static Groundwater Elevation Measurements

Static groundwater elevations will be determined for the CCL monitoring wells and piezometers prior to purging activities.

Potentiometric elevations will be measured by installing a temporary piezometer through each of the hollow CPT rods. The CPT rods, typically consisting of 1 3/4-inch hollow high carbon metal alloy with a pointed tip, are driven into the ground by a 20-25 ton CPT rig. A 3/4-inch (Internal Diameter-ID) PVC screen and blank casing is attached to the tip. The tips are usually made of standard carbon steel which are expendable and stay in place. At the desired depth, the rods will be retracted, exposing the 3/4-inch screen. The screen will be five feet long and will have 0.01 inch slots. The piezometers (casing) will be left in place overnight to allow water levels to fully stabilize before water level measurements are made.

Water elevation will be measured with a water level indicator to the nearest 0.01 ft. The water level indicator consists of a electronic groundwater level reader or sounding meter (Solinst or equivalent) with a minimum 250 foot long tape graduated in 0.1 foot increments connected to a probe. The tape will include insulated cables connected to a probe to measure the conductivity of the water to indicate water level. A light will go on and a sound will occur at the electronic meter when the water level is indicated. The tape will go into the casing of the piezometer or well and the graduated tape will be utilized to measure the groundwater depth from a known elevation datum within the well or piezometer. The elevation datum will consist of a permanent mark located at the top of the well or piezometer casing. The elevation of the static groundwater level within the well or piezometer is determined by subtracting the measured depth to groundwater from the elevation datum. The elevation of the top of the piezometer or well casing will be properly surveyed to accurately evaluate groundwater flow direction. The survey will be tied to a reference elevation, permanent monuments such as a street curb or benchmark so that data can be correlated with monitoring wells at the Cal Compact site. Measurements will be taken to the nearest 0.01 foot from these data by reading the groundwater sounding meter tape (sounder). To ensure repeated accuracy a dedicated water level meter should be used for the VGC site for future groundwater level measurements. This water level indicator is the most accurate piezometric measurement compared to the older technology of the coated measuring tape which turns color at the measured depth.

Water-level equipment will be decontaminated before and after use in each piezometer or well.

Water levels will be measured in the CPT piezometers first, and in the Cal Compact site wells last. At this time it is not known if the CPT groundwater samples are impacted, but it is known that the Cal Compact wells are moderately impacted. The order for measurement of the groundwater elevations may change following piezometer installation and review of subsequent groundwater sample analyses.

The planned procedures for water-level measurements are the following.

1. Determine that all sounding equipment is in proper working order. The water level sounders used at the site will be calibrated.
2. Clean the electric water sounder (if not already done) and lower it into the well or piezometer sounding tube or casing.
3. Measure the static water level. Record the water level measurement information, including the time of measurement, in the field log book or on field data forms. It may also be necessary to measure the total depth of the well or piezometer. If necessary, sound the total depth and record the measurement and time in the field log book or on field data forms.
4. Repeat these steps for the remaining wells or piezometers.

5.2.3 Groundwater Well Survey.

Well casing elevations will be surveyed for elevation to the nearest 0.01 foot using the National Geodetic Vertical Datum (NGVD) and for northings and eastings to the nearest 0.1 foot using the US Coast and Geodetic Survey (USC&GS) datum and Universal Transverse Mercator System (UTM). The point on the well casing used for surveying will be permanently etched or notched into the rim of the casing and to a permanent monument not influenced by any possible landfill movement.

A California Licensed surveyor will be retained to survey all piezometers, wells, CPT locations and other necessary sampling locations.

5.2.4 Groundwater Sampling

Sampling at the water table will be accomplished using the PVC piezometer driven in with the rods, as described earlier. Upon reaching the target depth the rods are retracted to expose the PVC screen. The sample will be collected with a 3/4 inch stainless steel (or disposable) bailer. Monitoring wells and other wells without a dedicated pump will be sampled using a 3/4 inch stainless steel (or disposable) bailer. After collection of the sample, the rods are withdrawn and decontaminated, and the hole is back filled. The cycle is repeated for the next sampling interval.

An alternative method that may be used for the deeper intervals (below water table) is to drive a hydropunch device at the end of the hollow rods. Upon reaching the target depth, the rods are retracted to expose a stainless steel screen. Driven by hydrostatic pressure, water is drawn into a sample reservoir via a one-way reed valve. After it is determined that enough time has lapsed to fill the reservoir, the device is withdrawn to the surface.

The grouting procedure consists of pushing a hollow CPT rod with "knock out" plug back down the hole to the termination depth. Bentonite slurry is then pumped under pressure as the tremie pipe is pulled from the hole.

5.2.5 Purging.

All piezometers will be purged prior to sampling. If the piezometer casing volume is known, a minimum of three casing volumes of water will be purged using a hand pump, submersible pump, or bailer; depending on the diameter and configuration of the piezometer. When a submersible pump is used for purging, clean flexible Teflon tubes will be used for groundwater extraction. All tubes will be decontaminated before use in each well. Pumps will be placed 2 to 3 feet from the bottom of the piezometer to permit reasonable drawdown but to prevent cascading conditions. Water will be collected into a measured bucket to record the purge volume. Casing volumes will be calculated based on total piezometer depth, standing water level, and casing diameter. One casing volume will be calculated as:

$$V = \pi d^2 h / 77.01$$

where:

V is the volume of one piezometer casing of water (in gallons, 1 ft³ = 7.48 gallon);

d is the inner diameter of the piezometer casing (in inches); and

h is the total depth of water in the piezometer (in feet).

Prior to the start of purging, in the middle of purging each casing volume, and after each piezometer casing volume is purged; water temperature, pH, and specific conductance will be measured using field test meters and the measurements will be recorded. Samples will be collected after these parameters have stabilized; indicating representative formation water is entering the piezometer. Three consecutive measurements which display consistent values of all parameters will be taken prior to sampling. Samples will be collected after three piezometer casing volumes if parameters have stabilized. Typically, the temperature should not vary by more than +/- 1°C, pH by more than 0.2 pH units, and specific conductance by more than 10 percent from reading to reading. No water that has been tested with a field meter probe will be collected for chemical analysis. If these parameters have not stabilized after five casing volumes have been purged (30 minutes if the purge volume is not known), purging will cease, a notation will be recorded in the field logbook and samples will be collected. In accordance with Section 7.1, depth to water measurements, field measurements of parameters, and purge volumes will be recorded in the field logbook.

If a piezometer dewateres during purging and three casing volumes are not purged, that piezometer will be allowed to recharge up to 80 percent of the static water column, and dewatered once more. After water levels have recharged to 80 percent of the static water column, groundwater samples will be collected.

All field meters will be calibrated according to manufacturers guidelines and specifications before and after each day of field use. Field meter probes will be decontaminated before and after use at each piezometer.

5.2.6 Piezometer Sampling.

Prior to sampling each piezometer, the water level in the piezometer will be measured as described in Section 5.2.1. If necessary, the piezometer will be purged as described in Section 5.2.3.2. Monitoring wells and other wells without a dedicated pump will be sampled using a 3/4 inch stainless steel (or disposable) bailer.

At each sampling location, all bottles designated for a particular analysis (e.g., CLPAS volatile organic compounds) will be filled sequentially before bottles designated for the next analysis are filled (e.g., CLPAS semivolatile organic compounds). If a duplicate sample is to be collected at this location, all bottles designated for a particular analysis for both sample designations will be filled sequentially before bottles for another analysis are filled. In the filling sequence for duplicate samples, bottles with the two different sample designations will alternate. Groundwater samples will be transferred from the bailer directly into the appropriate sample containers with preservative, if required, chilled, and processed for shipment to the laboratory. When transferring samples, care will be taken not to touch the bailer emptying device to the sample container.

Vials for volatile organic compound analysis will be filled first to minimize aeration of water in the well. A test vial will be preserved with HCl to determine the amount of preservative needed to lower the pH to less than 2. The appropriate amount of HCl will then be added to the sample vials prior to the addition of the sample. The vials will be filled directly from the tap. The vial will be inverted and checked for air bubbles to insure zero headspace. If a pea-size or larger air bubble appears, the vial contents will be emptied into the measured container, the vial discarded, and a new sample will be collected.

It may be determined in the field during the ESI sampling event to collect groundwater samples from a separate CPT downhole close to the piezometer locations. This decision, if made, not to collect through the piezometers will be documented in the field notes and the ESI Report.

5.2.7 Filtering Groundwater Samples

The presence of high levels of suspended metals in groundwater samples (due to the incomplete purging, turbulent purging, or disturbance of sediments during sampling) complicates efforts to collect samples representative of actual groundwater conditions. In the evaluation of monitoring data from such samples, it is difficult to differentiate between the contribution of metals from natural sources, entrained particles that are naturally immobile, and releases from the site.

Key Issues in Site Assessment Ground Water Sampling dated February 8, 1993 by EPA recommends the following sampling practices for metal analysis. If a sample does not exceed 10 nephelometric turbidity units (NTUs), collect a fresh sample for analysis. If the

sample exceeds 10 NTUs, resample using a 5 micron in-line filter to remove larger particles that have been entrained in the water. For samples that are filtered, an in-line filter is to be placed between the collected water and the sample container, either in-line on the tubing of a sampling pump or attached to the outlet device of a bottom emptying bailer.

5.2.8 Well Inspections.

All monitoring wells will be inspected for integrity and upgraded for additional protection, if necessary. Well inspection will include verifying the presence of suitable locking devices for protection from unauthorized access. Protection from vandalism and vehicle traffic will also be considered when inspecting wells. Aboveground riser casings, caps, and grout aprons will be inspected for damage. Permanent well identification markings will be noted and, if absent, installed. Permanent identification (ID) markings should include the well designation, total well depth, well elevation using the National Geodetic Vertical Datum (NGVD) and reference point (top of casing, top of box, or ground surface). The well ID should be installed in a manner where the information is easily read and cannot be removed from the well. Usually this is done by etching or painting this information onto a metal tag and installing the tag on the well cap or attaching the tag to the casing in some other manner. Painting this information on the outside of the well casing or inside the protective cover is acceptable but not recommended because paint chemicals may induce spurious results in subsequent groundwater quality analyses. If painting is the chosen method, it should be done after the well has been sampled and closed. If the well is to be surveyed; survey points on well casing, well box, or grout apron will be permanently marked by etching the grout or notching the casing in a conspicuous manner. Surface well seals will be inspected for integrity, local surface spills, and proper drainage away from the well. Casings will be inspected at the surface for cracks or other damage.

5.3 Equipment Rinsate Blanks

Equipment rinsate blanks will be collected to evaluate field sampling and decontamination procedures by pouring high performance liquid chromatography (HPLC) solvent free water (for organics) or deionized water (for inorganics) over the decontaminated sampling equipment. One equipment rinsate blank will be collected per matrix each day that sampling equipment is decontaminated in the field. Equipment rinsate blanks will be obtained by passing water through or over the decontaminated sampling devices used that day. The rinsate blanks that are collected will be analyzed using the CLP Laboratory for CLPAS Volatile Organics, CLPAS Semi-Volatiles and CLPAS metals

The equipment rinsate blanks will be preserved, packaged, and sealed in the manner described in Section 7.5 of this sampling plan, and a separate CLP sample number and station number will be assigned to each sample, and it will be submitted blind to the laboratory.

5.4 Decontamination Procedures

The decontamination procedures that will be followed are in accordance with approved QAPJP procedures. Decontamination of sampling equipment must be conducted consistently to assure the quality of samples collected. All equipment that comes into contact with potentially contaminated soil or water will be decontaminated. Disposable equipment intended for one time use will not be decontaminated but will be packaged for appropriate disposal. Decontamination will occur prior to and after each use of a piece of equipment. All sampling devices used, including trowels and augers, will be steam-cleaned or decontaminated according to EPA Region IX recommended procedures.

The following, to be carried out in sequence, is an EPA Region IX recommended procedure for the decontamination of sampling equipment:

- Non-phosphate detergent and tap water wash, using a brush if necessary
- Tap-water rinse
- 0.1 N nitric acid rinse
- Deionized/distilled water rinse
- Pesticide-grade solvent (reagent grade hexane) rinse in a decontamination bucket
- Deionized/distilled water rinse (twice)
- Organic-free water rinse (HPLC) grade

Equipment will be decontaminated in a predesignated area on pallets or plastic sheeting, and clean bulky equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned small equipment will be stored in plastic bags. Materials to be stored more than a few hours will also be covered.

6.0 DISPOSAL OF RESIDUAL MATERIALS

In the process of collecting environmental samples at the VGC site during the ESI, DTSC site team will generate different types of potentially contaminated investigation-derived wastes (IDW) that include the following:

- Used personal protective equipment (PPE)
- Disposable sampling equipment

- Decontamination fluids
- Purged groundwater and excess groundwater collected for sample container filling.

The EPA's National Contingency Plan (NCP) requires that management of IDW generated during SIs comply with all applicable or relevant and appropriate requirements (ARARs) to the extent practicable. The sampling plan will follow the *Office of Emergency and Remedial Response (OERR) Directive 9345.3-02* (May 1991) which provides the guidance for the management of IDW during ESIs. In addition, other legal and practical considerations that may affect the handling of IDW will be considered.

Listed below are the procedures that will be followed for handling the IDW. The procedures have enough flexibility to allow the site investigation team to use its professional judgment on the proper method for the disposal of each type of IDW generated at each sampling location:

- Used PPE and disposable equipment will be double bagged and placed in a municipal refuse dumpster on site. Any PPE and disposable equipment that is to be disposed of which can still be reused will be rendered inoperable before disposal in the refuse dumpster. If higher levels of contamination exist at the site, used PPE and disposable equipment will be placed in drums.
- Decontamination fluids that will be generated in the ESI will consist of dilute nitric acid, pesticide-grade solvent, HPLC or deionized water, residual contaminants, and water with non-phosphate detergent. The volume and concentration of the decontamination fluid will be sufficiently low to allow disposal at the site. The water (and water with detergent) will be poured onto the ground or into a storm drain. Pesticide-grade solvents will be allowed to evaporate from the decontamination bucket. The nitric acid will be diluted and/or neutralized with sodium hydroxide and tested with pH paper before pouring onto the ground or into a storm drain.
- Purged groundwater will be placed in drums or containers.

7.0 SAMPLE DOCUMENTATION AND SHIPMENT

7.1 Field Logbooks

Field logbooks will document where, when, how, and from whom any vital project information was obtained. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. A separate logbook will be maintained for each project. Logbooks are bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. All entries will be legible, written in black ink, and

signed by the individual making the entries. Language will be factual, objective, and free of personal opinions or other terminology which might prove inappropriate.

At a minimum, the following information will be recorded during the collection of each sample:

- Sample location and description
- Site sketch showing sample location and measured distances
- Sampler's name(s)
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample (i.e., matrix)
- Type of sampling equipment used
- Onsite measurement data (e.g., temperature, pH, conductivity, etc.)
- Field observations and details important to analysis or integrity of samples (e.g., heavy rains, odors, colors, etc.)
- Preliminary sample descriptions (e.g., for soils: clay loam, very wet; for groundwater: clear water with strong ammonia-like odor)
- Type(s) of preservation used
- Instrument reading (e.g., OVM, HNU, etc.)
- Lot numbers of the sample containers, sample tag numbers, chain-of-custody form numbers, and chain-of-custody seal numbers
- Shipping arrangements (overnight air bill number)
- Recipient laboratory(ies)

In addition to the sampling information, the following specifics will also be recorded in the field logbook for each day of sampling:

- Team members and their responsibilities
- Time of site arrival/entry on site and time of site departure
- Other personnel on site

- A summary of any meetings or discussions with any potentially responsible parties (PRPs), representatives of PRPs, or federal, state, or other regulatory agencies
- Deviations from sampling plans, site safety plans, and QAPjP procedures
- Changes in personnel and responsibilities as well as reasons for the changes
- Levels of safety protection
- Calibration readings for any equipment used and equipment model and serial number.

7.2 Bottles and Preservatives

The number of sample containers, volumes, and materials are listed in the Section 4.0, Request for Analyses tables. The containers are pre-cleaned and will not be rinsed prior to sample collection. Preservatives, if required, will be added by DTSC to the containers prior to shipment of the sample containers to the laboratory.

7.2.1 Groundwater Samples

CLPAS Semivolatile Organic Compounds. Low concentration groundwater samples to be analyzed for CLPAS Semivolatile Organic Compounds will be collected in 1-liter amber glass bottles. No preservative is required for these samples. The samples will be chilled to 4°C immediately upon collection. Two bottles of each groundwater sample are required for each laboratory.

CLPAS Volatile Organic Compounds. Low concentration groundwater samples to be analyzed for CLPAS volatile organic compounds will be collected in 40-ml glass vials. 1:1 hydrochloric acid (HCl) will be added to the vial prior to sample collection. During purging, the pH will be measured using a pH meter on at least one vial at each sample location to ensure the pH is less than 2. The tested vial will be discarded. If the pH is greater than 2, additional HCl will be added to the sample vials. Another vial will be pH tested to ensure the pH is less than 2. The tested vial will be discarded. The vials will be filled so that no headspace occurs. The samples will be chilled to 4°C immediately upon collection. Three vials of each groundwater sample are required for each laboratory.

CLPAS Metals. Low concentration groundwater samples collected for CLPAS metals analysis will be collected in 1-liter polyethylene bottles. The samples will be preserved by adding in nitric acid (HNO₃) to the sample bottle. The bottle will be capped and lightly shaken to mix in the acid. a small quantity of sample will be poured into the bottle cap where the pH will be measured using pH meter. The pH must be less than or equal to 2. The sample in the cap will be discarded, and the pH of the sample will be adjusted further if

necessary. The samples will be chilled to 4°C immediately upon collection. One bottle of each groundwater sample is required for each laboratory.

7.2.2 Equipment Rinsate Blanks

CLPAS Semivolatile Organic Compounds. Low concentration equipment rinsate blanks to be analyzed for CLPAS Semivolatile Organic Compounds will be collected in 1-liter amber glass bottles. No preservative is required for these blanks. The blanks will be chilled to 4°C immediately upon collection. Two bottles of each equipment rinsate sample are required for each laboratory.

CLPAS Volatile Organic Compounds. Low concentration equipment rinsate blanks to be analyzed for volatile organic compounds will be collected in 40-ml glass vials. 1:1 hydrochloric acid (HCl) will be added to the vial prior to sample collection. The pH will be measured using a pH meter on at least one vial at each sample location to ensure the pH is less than 2. The tested vial will be discarded. If the pH is greater than 2, additional HCl will be added to the sample vials. Another vial will be pH tested to ensure the pH is less than 2. The tested vial will be discarded. The vials will be filled so that no headspace occurs. The samples will be chilled to 4°C immediately upon collection. Three vials of each equipment rinsate blank are required for each laboratory.

CLPAS Metals. Low concentration equipment rinsate blanks collected for total metals analysis will be collected in 1-liter polyethylene bottles. The blanks will be preserved by adding nitric acid (HNO₃) to the sample bottle. The bottle will be capped and lightly shaken to mix in the acid. a small quantity of sample will be poured into the bottle cap where the pH will be measured using pH meter. The pH must be less than or equal to 2. The sample in the cap will be discarded, and the pH of the sample will be adjusted further if necessary. The samples will be chilled to 4°C immediately upon collection. One bottle of each equipment rinsate blank is required for each laboratory.

7.3 Sample Traffic Report And Chain-Of-Custody Records, RAP Packing Lists, And QA/QC Summary Forms

Organic and inorganic traffic reports and chain-of-custody records and RAP packing lists are used to document sample collection and shipment to laboratory for analysis. All sample shipments for CLPAS analyses will be accompanied by a traffic report and chain-of-custody record. All sample shipments for RAP analyses will be accompanied by a packing list. Form(s) will be completed and sent with the samples for each laboratory and each shipment (i.e., each day). If multiple coolers are sent to a single laboratory on a single day, form(s) will be completed and sent with the samples for each cooler.

The traffic report and chain-of-custody record or RAP packing list will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are shipped, the custody of the samples will be the responsibility of DTSC. The site leader or designee will sign the traffic report and

chain-of-custody record or CLP packing list. The site leader or designee will sign the "relinquished by" box and note date, time, and air bill number.

For samples submitted for CLPAS inorganic analysis, the green (original) and pink (second) copies of the traffic report and chain-of-custody record will be sent to the EPA Region IX Quality Assurance Management Section (QAMS) and the white (third) and yellow (fourth) copies will accompany the samples to the laboratory. A copy of the original will be made for the DTSC conducting sampling] master files.

For samples submitted for CLPAS organic analyses, the blue (original) and pink (second) copies of the traffic report and chain-of-custody record will be sent to the EPA Region IX Quality Assurance Management Section (QAMS) and the white (third) and yellow (fourth) copies will accompany the samples to the laboratory. A copy of the original will be made for the DTSC master files.

The white (original) copy of the RAP packing list will be sent to the EPA Region IX Quality Assurance Management Section (QAMS), the yellow (second) copy will go to the Contact Laboratory Analytical Services Support (CLASS) office, and the gold (third) and pink (fourth) copies will accompany the samples to the laboratory. A copy of the original will be made for the DTSC master files.

A quality assurance/quality control (QA/QC) summary form will be completed for each laboratory and each matrix of the sampling event. The sample numbers for all rinsate samples, reference samples, laboratory QC samples, and duplicates will be documented on this form (see Section 8.0). The original form will be sent to QAMS; a photocopy will be made for the DTSC master files. This form is not sent to the laboratory.

A self-adhesive custody seal will be placed across the lid of each sample. For VOC samples, the seal will be wrapped around the cap. The shipping containers in which samples are stored (usually sturdy picnic cooler or ice chest) will be sealed with self-adhesive custody seals any time they are not in someone's possession or view before shipping. All custody seals will be signed and dated.

The CLP Paperwork Instructions, Appendix G to the guidelines on *Preparation of a U.S. EPA Region 9 Sample Plan for EPA-Lead Superfund Projects*, will be taken to the field as a reference. Corrections on sample paperwork will be made by placing a single line through the mistake and initialing and dating the change. The correct information will be entered above, below, or after the mistake.

7.4 Photographs

Photographs will be taken at every sample location and at other areas of interest on site. They will serve to verify information entered in the field logbook. When a photograph is taken, the following information will be written in the logbook or will be recorded in a separate field photography log:

Time, date, location, and, if appropriate, weather conditions

- Description of the subject photographed
- Name of person taking the photograph

7.5 Labeling, Packaging, And Shipment

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. The CLP samples will have preassigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information: CLP Case or RAP Number, station location, date of collection, analytical parameter(s), and method of preservation. Every sample, including samples collected from a single location but going to separate laboratories, will be assigned a unique sample number.

All sample containers will be placed in a strong-outside shipping container (a steel-belted cooler). The following outlines the packaging procedures that will be followed for low concentration samples.

1. When ice is used, secure the drain plug of the cooler with fiberglass tape to prevent melting ice from leaking out of the cooler.
2. Line the bottom of the cooler with bubble wrap to prevent breakage during shipment.
3. Check screw caps for tightness and, if not full, mark the sample volume level of liquid samples on the outside of their sample bottles with indelible ink.
4. Secure bottle/container tops with clear tape and custody seal all container tops.
5. Affix sample labels onto the containers with clear tape.
6. Wrap all glass sample containers in bubble wrap to prevent breakage.
7. Seal all sample containers in heavy duty plastic bags. Write the sample numbers on the outside of the plastic bags with indelible ink.

All samples will be placed in coolers with the appropriate traffic report and chain-of-custody forms or RAP packing lists. All forms will be enclosed in a large plastic bag and affixed to the underside of the cooler lid. Empty space in the cooler will be filled with bubble wrap or styrofoam peanuts to prevent movement and breakage during shipment. Vermiculite will also be placed in the cooler to absorb spills if they occur. Ice used to cool samples will be double sealed in two zip lock plastic bags and placed on top and around the samples to chill

them to the correct temperature. Each ice chest will be securely taped shut with nylon strapping tape, and custody seals will be affixed to the front, right and back of each cooler.

The EPA Region IX Regional Sample Control Center (RSCC) will be notified daily (phone 415-744-1498) of the sample shipment schedule (Friday shipments must be reported no later than noon) and will be provided with the following information:

- Sampling contractor's name
- The name and location of the site
- Case number or RAP number
- Total number(s) by concentration and matrix of samples shipped to each laboratory
- Carrier, air bill number(s), method of shipment (priority next day)
- Shipment date and when it should be received by lab
- Irregularities or anticipated problems associated with the samples
- Whether additional samples will be shipped or if this is the last shipment.

8.0 QUALITY CONTROL

8.1 Equipment Rinsate

Equipment rinsate blanks will be prepared to evaluate field sampling and decontamination procedures. The equipment rinsate blanks will be prepared as described in Section 5.12 and will be analyzed for CLPAS Metals, CLPAS SVOCs, CLPAS VOCs. A minimum of one equipment rinsate blank will be collected per matrix per day that sampling equipment is decontaminated in the field. Equipment rinsate blanks will be obtained by passing HPLC-grade water (for organics) and/or deionized water (for inorganics) through or over the decontaminated sampling device.

Blanks will be preserved, packaged, and sealed as appropriate for water samples. A separate CLP sample number and station number will be assigned to each blank, and it will be submitted blind to the laboratory.

8.2 Background (Reference) Samples

The background (reference) samples will be collected in an area which is unlikely to have received contaminants. Background samples are intended to be representative of conditions that exist in the site vicinity. Background samples will be taken in similar geological strata to the other sample locations and at similar depth.

Background soil samples obtained from the Cal Compact site, which are applicable to the VGC site, will be used. Background/upgradient groundwater samples will be determined in the field after preliminary hydrogeologic data and groundwater gradient from the VGC site is obtained.

Background samples will be preserved, packaged, and sealed in the same manner as other samples of the same matrix. A separate CLP sample number and station number will be assigned to each background sample, and it will be submitted blind to the laboratory.

8.3 Duplicate Samples

Duplicate samples are collected simultaneously with a standard sample from the same source under identical conditions into separate sample containers. A duplicate sample is treated independently of its counterpart in order to assess laboratory performance through comparison of the results. At least 10 percent of samples collected per event will be duplicates. At least one duplicate will be collected for each sample matrix. Every analytical group for which a standard sample is analyzed will also be tested for in one or more duplicate samples. Duplicate samples should be collected from areas of known or suspected contamination (CPT-2 and CPT-7, SS-2.10 and SS-7.20).

Duplicate soil samples will be collected at sample locations SS-2.10 and CPT 2 and SS-7.20 at CPT-7. Duplicate samples will be collected at these locations because they are within or immediately adjacent to the landfill, which is a suspected source of contamination at the site.

Soil samples analyzed for SVOCs and Metal will be homogenized with a trowel in a dedicated disposable pail. Homogenized material will be transferred to the appropriate glass jars for regular and duplicate samples. All jars for one particular analysis will be filled before the next (SVOCs before metals). VOC samples WILL NOT be Homogenized. When collecting duplicates for VOCs the adjacent brass sleeve will serve as the duplicate.

Duplicate groundwater samples will be collected from CPTs 4, 5, and 8 (GW-11,27 and 28). CPT 4 and 5 were chosen because they are up and down gradient of the landfill area, which is a suspected source of contamination at the site. Location CPT-8 is immediately beneath the landfill area, which is a suspected source of contamination. When collecting duplicate groundwater samples, bottles with the two different sample identification numbers will alternate in the filling sequence. Note that bottles for one type of analysis should be filled before bottles for the next analysis are filled. Volatiles will always be filled first.

Duplicate samples will be preserved, packaged, and sealed in the same manner as other samples of the same matrix. A separate CLP sample number and station number will be assigned to each duplicate, and it will be submitted blind to the laboratory.

8.4 Laboratory Quality Control Samples

Laboratory quality control (QC) samples are analyzed by the EPA contract as part of the CLP standard laboratory quality control protocols. The laboratory monitors the precision and accuracy of the results of their analytical procedures through analysis of QC samples. In part, laboratory QC samples consist of matrix spike samples and matrix spike duplicate samples. The term "matrix" refers to use of the actual media collected in the field (i.e., routine soil and water samples). Laboratory QC samples are an aliquot (subset) of the field sample. They are not a separate sample but a special designation of an existing sample. A routinely collected soil sample (a full 8-oz. sample jar or two 120-ml sample vials) contains sufficient volume for both routine sample analysis and additional laboratory QC analyses. However, for water samples, double volumes of samples are supplied to the laboratory for its use. Two sets of water sample containers are filled and all containers are labeled with a single sample number. The laboratory is alerted as to which sample is to be used for QC analysis by notation on the sample container label and the traffic report and chain-of-custody record or SAS packing list.

At a minimum, one laboratory QC sample is required per week or one per 20 samples (including blanks and duplicates), whichever is greater. If the sample event lasts longer than 1 week or involves collection of more than 20 samples per matrix, additional QC samples will be designated. For this sampling event, samples collected at the following locations will be the designated laboratory QC samples:

- For groundwater, samples CPT 1 and CPT 3 will be designated for QA/QC samples.

These QA/QC samples from each matrix were chosen because they are expected to demonstrate the highest levels of contamination. The rationale for the selection of QA/QC samples is based on previously-detected contamination at the site, historic site operations, expected contaminant and deposition/migration. The selection of the CPT sample locations designated for QA/QC samples may change in the field following review of subsequent groundwater gradient and groundwater sample analyses.

8.5 Temperature Blanks

In order to fully and accurately evaluate potential effects of sample transportation and handling on data quality, a temperature blank will be enclosed in each sample shipping container when samples requiring preservation by chilling are transported. A 40-ml VOA is an adequate temperature blank container, and should be clearly marked to indicate its purpose to the laboratory. The temperature blank will be handled in exactly the same manner as the actual samples. In other words, if the samples are wrapped in padding, the temperature blank will be wrapped in padding; if the samples are chilled in ice water before

packaging and shipment, the temperature blank should also be chilled in ice water before packaging the shipment.

A temperature blank will be prepared for each samples shipment cooler to evaluate whether temperature changes have occurred during shipping and handling. Temperature blanks will be prepared by pouring solvent free water into a 40 milliliter (ml) vial prior to shipment from the site, then shipping it. One temperature blank will be prepared for each cooler of samples shipped. The laboratory will measure the temperature of the water in the cooler upon receipt at the laboratory to assess whether proper sample preservation temperature was maintained. The temperature blanks will be packaged in the manner described in Section 7.5 of this sample plan. However, temperature blanks will not be assigned a separate CLP sample number, nor will they be analyzed.

8.6 Field Variances

As conditions in the field may vary, it may become necessary to implement minor modifications to sampling as presented in this plan. When appropriate, QAMS will be notified of the modifications and a verbal approval will be obtained before implementing the modifications. Modifications to the approved plan will be documented in the ESI Report.

FIGURES

Table 4-1
REQUEST FOR ANALYTICAL SERVICES
MATRIX = SOIL

ANALYSES REQUESTED						CONTRACT LABORATORY PROGRAM ANALYTICAL SERVICES (CLPAS)				REGIONAL ANALYTICAL PROGRAM (RAP)	
CHEMISTRY TYPE						INORGANICS	ORGANICS			ORGANICS	
SPECIFIC ANALYSES REQUESTED						CLPAS Metals	CLPAS VOCs	CLPAS SVOCs	CLPAS Pesticides/PCBs		
PRESERVATIVES						None required	Chill to 4°C	Chill to 4°C	Chill to 4°C		
ANALYTICAL HOLDING TIME(S)						Hold to 6 months (28 days for Hg)	Hold <14 days	Hold <14 days prior to extraction, 40 days after extraction	Hold <14 days prior to extraction, 40 days after extraction		
CONTRACT HOLDING TIME(S)						Hold to 35 days (26 days for Hg)	Hold <10 days	Hold <10 days prior to extraction, 40 days after extraction	Hold <10 days prior to extraction, 40 days after extraction		
SAMPLE x SAMPLE						No. of Containers per Analysis	No. of Containers per Analysis	No. of Containers per Analysis	No. of Containers per Analysis	No. of Containers per Analysis	No. of Containers per Analysis
Sample Number	Sample Location	Sample Depth	Sample Date	Special Designation	Conc. LOW MED	1 in. x 6 in. brass sleeve	1 in. x 6 in. brass sleeve	1 in. x 6 in. brass sleeve	1 in. x 6 in. brass sleeve		
SS-1-10	SS-1	10'	12/96		X	1	1	1			
SS-1-20	SS-1	20'	12/96		X	1	1	1			
SS-2-10	SS-2	10'	12/96		X	1	1	1			
SS-2-20	SS-2	20'	12/96	Lab OC	X	1	1	1			
SS-3-10	SS-3	10'	12/96		X	1	1	1			
SS-3-20	SS-3	20'	12/96		X	1	1	1			
SS-4-10	SS-4	10'	12/96		X	1	1	1			
SS-4-20	SS-4	20'	12/96		X	1	1	1			
SS-5-10	SS-5	10'	12/96		X	1	1	1			
SS-5-20	SS-5	20'	12/96		X	1	1	1			
SS-6-10	SS-6	10'	1/97		X	1	1	1			
SS-6-20	SS-6	20'	1/97		X	1	1	1			
SS-7-10	SS-7	10'	12/96		X	1	1	1			
SS-7-20	SS-7	20'	12/96		X	1	1	1			
SS-8-10	SS-8	10'	1/97	Lab OC	X	1	1	1			
SS-8-20	SS-8	20'	1/97		X	1	1	1			
SS-9-10	SS-2	10'	12/96	FD	X	1	1	1			
SS-10-10	SS-7	10'	12/96	FD	X	1	1	1			
Totals (Samples/Containers)						18/18	18/18	18/18			

Table 4-2
REQUEST FOR ANALYTICAL SERVICES
MATRIX = WATER

ANALYSES REQUESTED						CONTRACT LABORATORY PROGRAM ANALYTICAL SERVICES (CLPAS)				REGIONAL ANALYTICAL PROGRAM (RAP)	
CHEMISTRY TYPE						INORGANICS	ORGANICS			ORGANICS	
SPECIFIC ANALYSES REQUESTED						Metals	VOCs	SVOCs	Pesticides/PCBs		
PRESERVATIVES						Add HNO ₃ to pH <2	Add 1:1 HCl to pH <2 Chill to 4°C	Chill to 4°C	Chill to 4°C		
ANALYTICAL HOLDING TIME(S)						Hold to 6 months (28 days for Hg)	Hold <7 days	Hold <7 days prior to extraction, 40 days after extraction	Hold <7 days prior to extraction, 40 days after extraction		
CONTRACT HOLDING TIME(S)						Hold to 35 days (26 days for Hg)	Hold <5 days	Hold <5 days prior to extraction, 40 days after extraction	Hold <5 days prior to extraction, 40 days after extraction		
SAMPLE x SAMPLE						No. of Containers per Analysis	No. of Containers per Analysis	No. of Containers per Analysis	No. of Containers per Analysis	No. of Containers per Analysis	No. of Containers per Analysis
Sample Number	Sample Location	Sample Depth	Sample Date	Special Designation	Conc. LOW MED	1 x 1 liter polyethylene bottle	3 x 40 ml glass vials	2 x 1 liter amber glass bottle	2 x 1 liter amber glass bottle		
GW-1-1	GW-1		12/96		X	1	1	1			
GW-2-1	GW-2		12/96	Lab QC	X	2	2	2			
GW-3-1	GW-3		12/96		X	1	1	1			
GW-4-1	GW-4		12/96		X	1	1	1			
GW-5-1	GW-5		12/96		X	1	1	1			
GW-8-1	GW-8		1/97	Lab QC	X	2	2	2			
GW-9-1	GW-9		12/96		X	1	1	1			
GW-10-1	GW-10		12/96		X	1	1	1			
GW-11-1			12/96	Pinsate	X	1	1	1			
GW-12-1			12/96	Field Blank	X	1	1	1			
GW-13-1			12/96	Pinsate	X	1	1	1			
GW-14-1			12/96	Pinsate	X	1	1	1			
GW-15-1			1/97	Pinsate	X	1	1	1			
GW-16-1			1/97	Pinsate	X	1	1	1			
GW-27-1	GW-9		1/97	Duplicate	X	1	1	1			
GW-28-1	GW-5		12/96	Duplicate	X	1	1	1			
Total (Samples/Containers)						16/18	16/54	16/34			

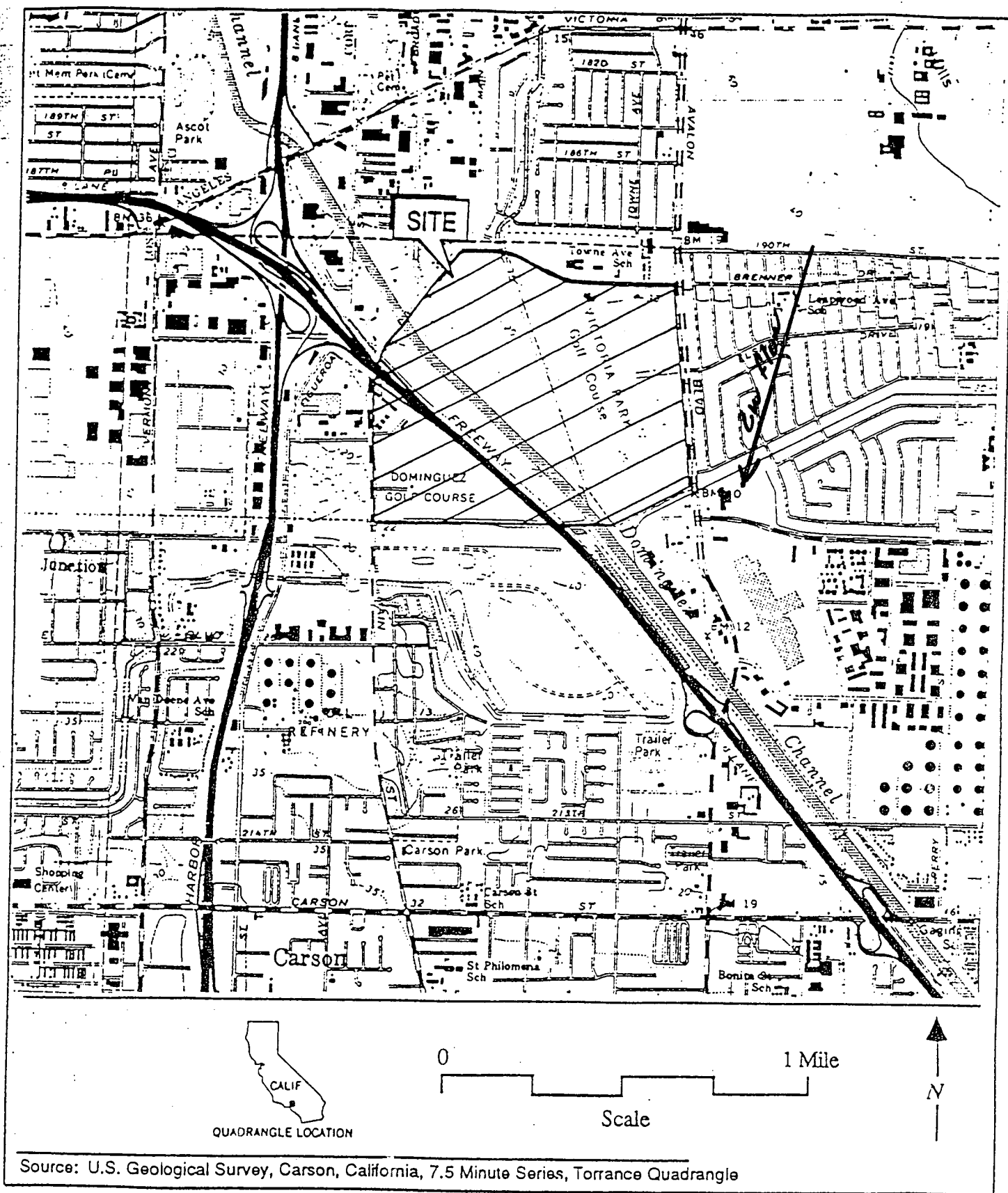
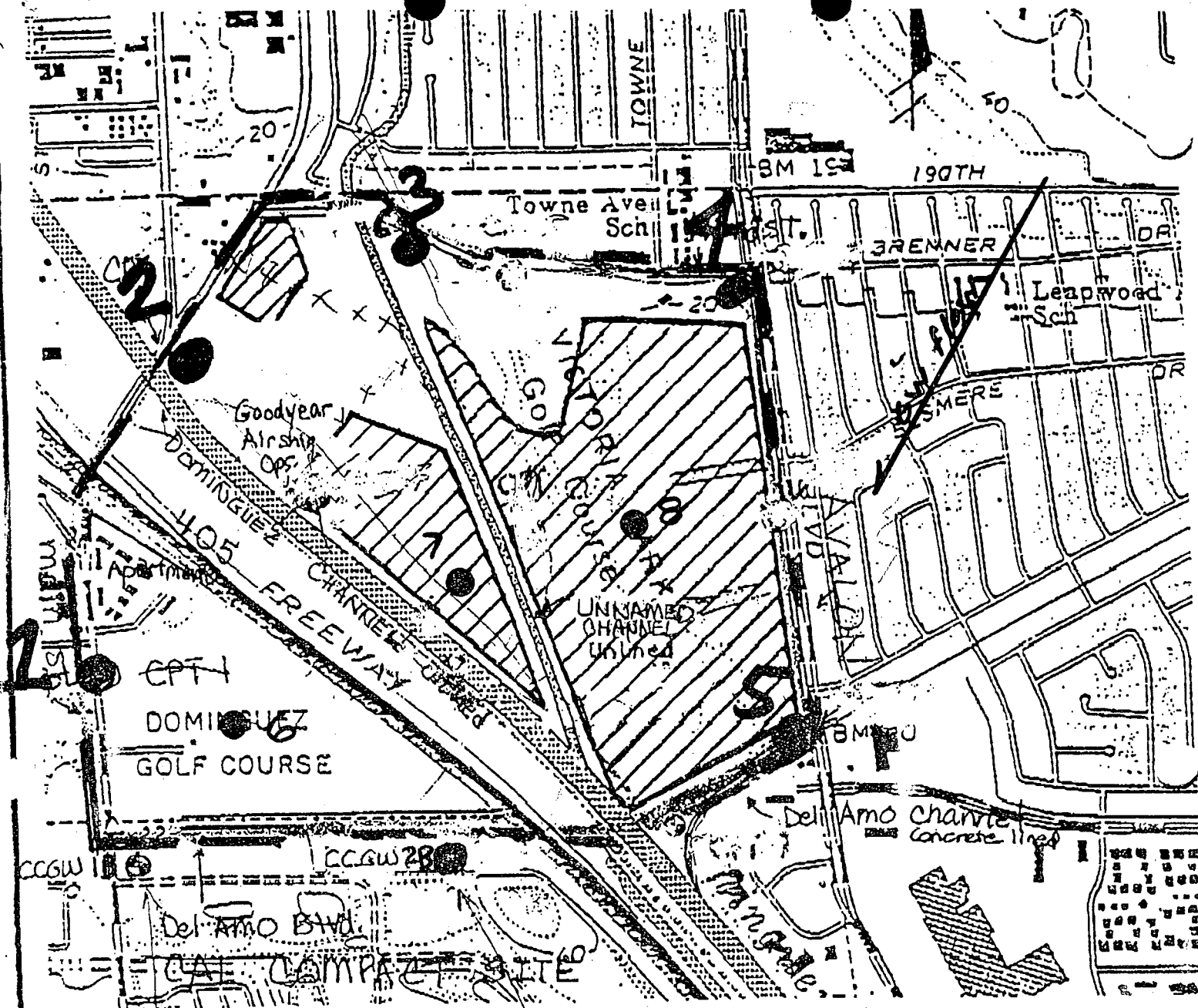


Figure 201 Site Location



LEGEND

○ CPT 1, 2, 3, 4, 5



GROUND WATER SAMPLING
LOCATIONS Groundwater
Wells CCGW-1, CCGW-2
at Cal Compact Site

NOTE:

LIMITS OF REFUSE BASED ON
AVAILABLE INFORMATION
APPROXIMATE LOCATIONS

GOODYEAR = 2 + 7

2-2
FIGURE

VICTORIA GOLF
COURSE SITE
CAD 980818926

PROPOSED Groundwater
SAMPLING LOCATIONS
E. S. INVESTIGATION (EST)

JOB NO.

DATE

DRAWN BY

DTSC PDS

CHECKED BY:

82

NOTES :

1. AMERICAN DISPOSAL INC., NO. 1
2. ASCOT PARK
3. KOERNER DUMP
4. BROWN DUMP
5. COTTLER DUMP
6. SOUTHWEST STEEL ROLLING MILL NO. 2
7. MOR-GLOW PAINT & LACQUER
8. BROADWAY-MAIN COMPANY
9. SOUTHERN CALIFORNIA DISPOSAL
10. L.A. COUNTY SANITATION 1A
11. SOUTHWEST STEEL ROLLING MILL NO. 1
12. L.A. COUNTY SANITATION 1B
13. MARTIN HALLEMAN
14. MONTROSE CHEMICAL SITE
15. DEL AMO SITE
16. VERMONT AVENUE/KNOX STREET DUMP
17. SHELL CHEMICAL
18. SOUTHWEST CONSERVATION LANDFILL
19. CARSON SITE
20. ROYAL BOULEVARD LANDFILL
21. GARDENA VALLEY 4 LANDFILL
22. GARDENA VALLEY 1 & 2 LANDFILL
23. GARDENA VALLEY 5 LANDFILL
24. WERDIN DUMP
25. CAL COMPACT LANDFILL
26. 213TH STREET DUMP
27. GARDENA VALLEY 6 LANDFILL

LEGEND :

PROJECT SITE LOCATION

22

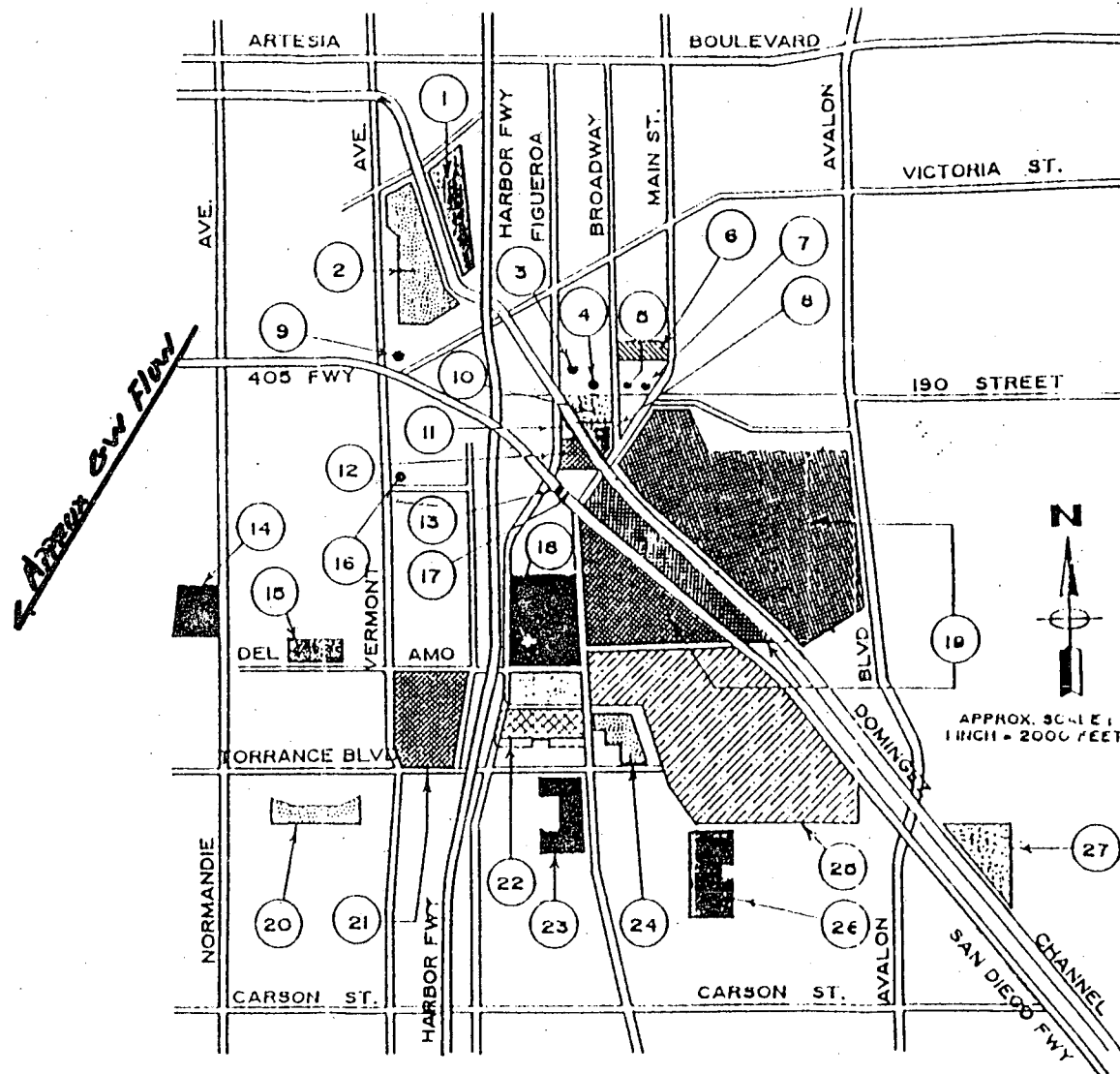


FIGURE 1-2



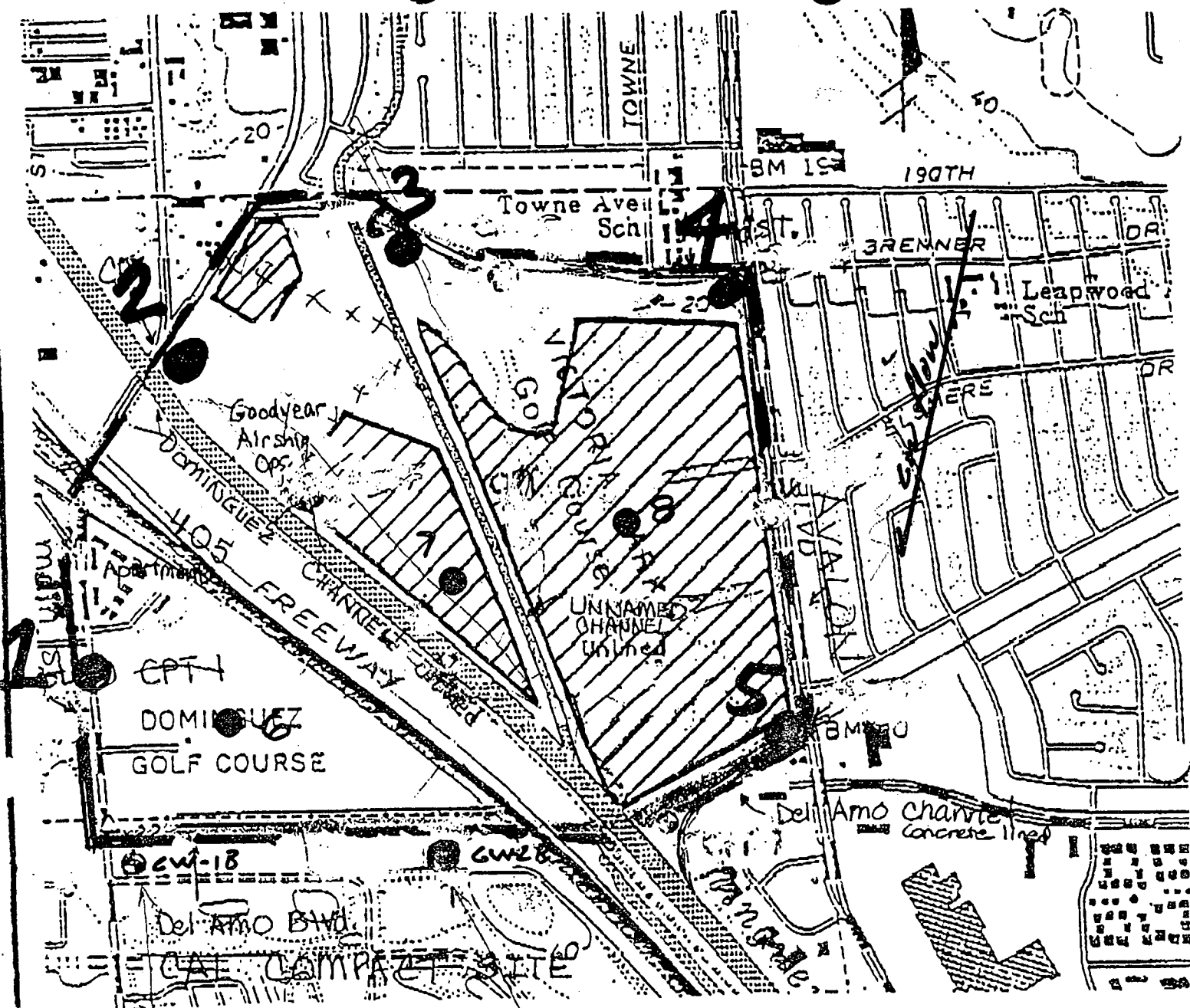
(714) 860 7777

BRYAN A. STUBBS & ASSOCIATES
CIVIL AND ENVIRONMENTAL ENGINEERS
1360 VALLEY VISTA DRIVE • GARDENA, CA 90248

GARDENA VALLEY 1 & 2 SITE LOCATION MAP AND NEARBY LANDFILLS

JOB NO. 90102-BK
DATE JUNE 1981
DRAWN BY: PTN
CHECKED BY: TGA

Figure 2-3 Nearby Landfills



LEGEND

O CPT 1, 2, 3, 4, 5



GROUND WATER SAMPLING
LOCATIONS Groundwater
Wells CCGW-1, CCGW-2
at Cal Compact Site

NOTE:

LIMITS OF REFUSE BASED ON
AVAILABLE INFORMATION
APPROXIMATE LOCATIONS

GOODYEAR = 2 + 7

FIGURE 3-1

VICTORIA GOLF

COURSE SITE
CAD 980818926

PROPOSED Groundwater

SAMPLING LOCATIONS

E. S. INVESTIGATION (ESI)

JOB NO.

DATE

DRAWN BY

DTSC 125

CHECKED BY:

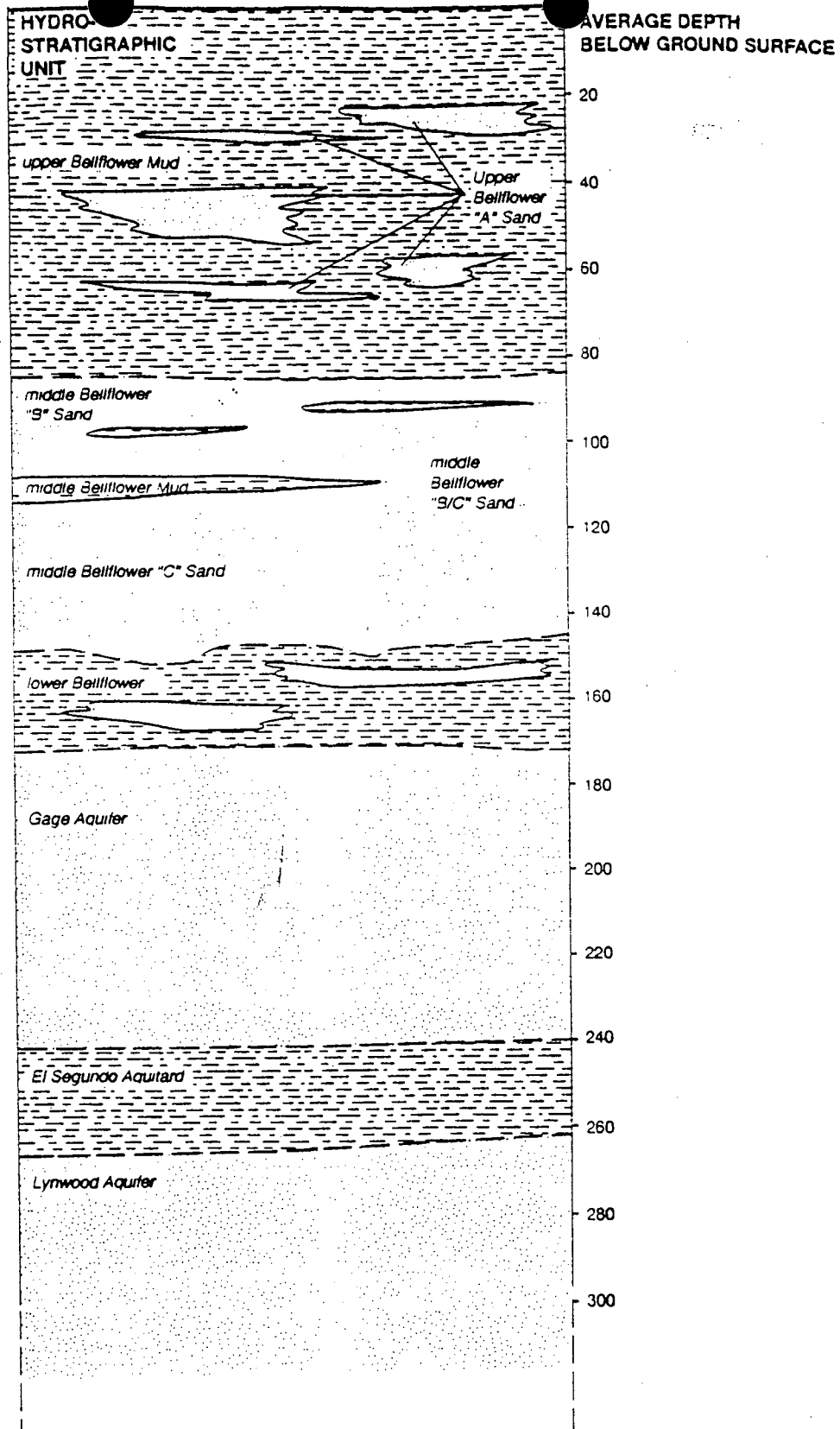


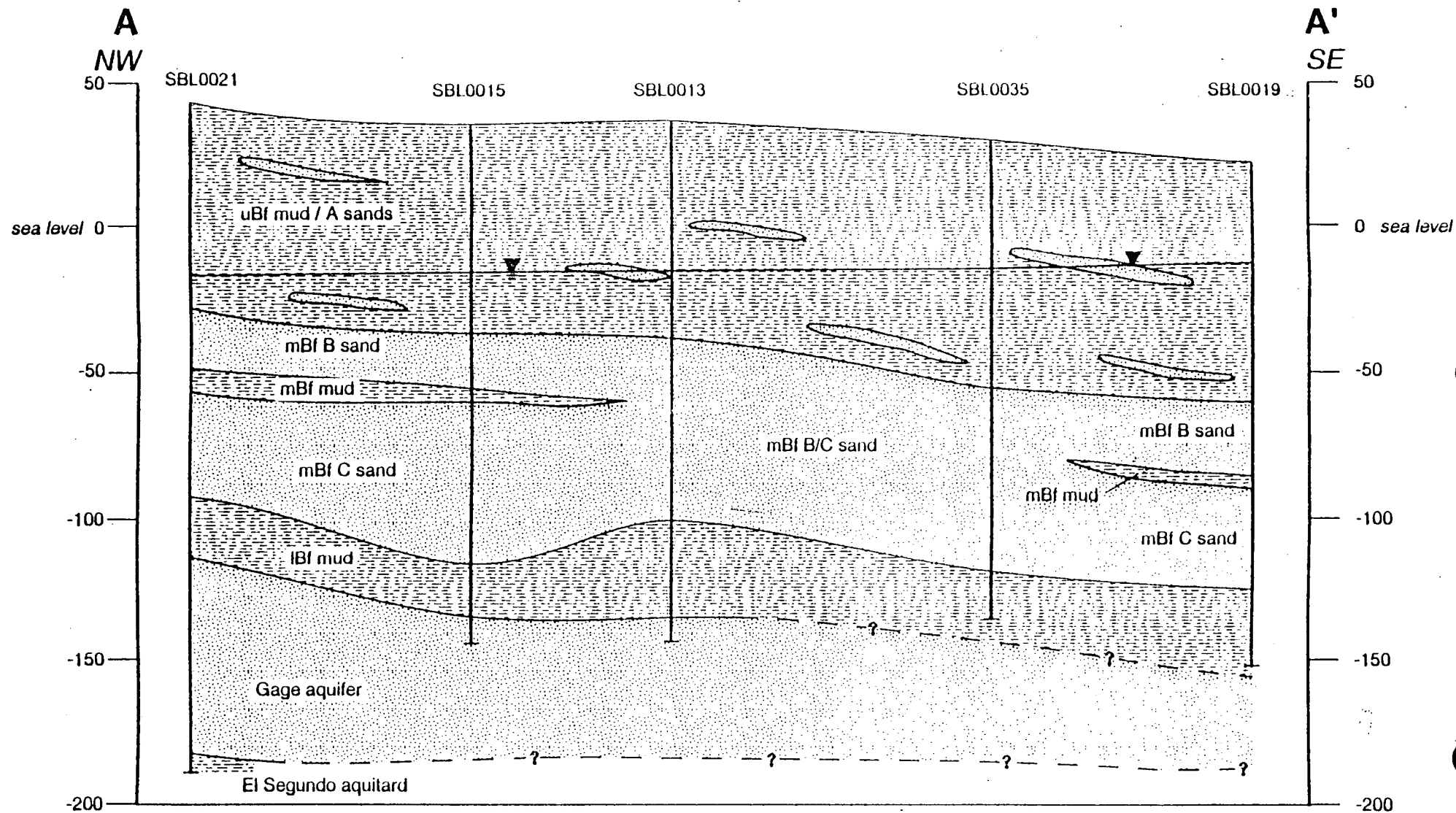
FIGURE 3-3

**GENERALIZED
HYDROSTRATIGRAPHIC
COLUMN**

Phase I RI

Del Amo Study Area

DAMES & MOORE



EXPLANATION:

uBf upper Bellflower
mBf middle Bellflower
IBf lower Bellflower

Predominantly Silts and Clays
Predominantly Sand

SBL0021 Boring Site Identification Number

Water Table

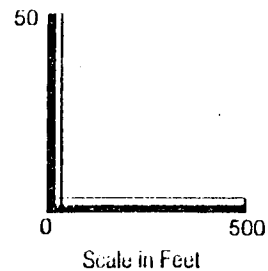


FIGURE 3-4

SCHEMATIC HYDROSTRATIGRAPHIC CROSS SECTION A - A'

Phase I RI
Del Amo Study Area

DAMES & MOORE



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901
415-744-1497 (Phone)
415-744-1476 (Facsimile)

FACSIMILE COVER SHEET

FROM: David Taylor

TO: Greg Holmes

ORGANIZATION: DTSC

PHONE NUMBER:

FACSIMILE NUMBER: 310 590-4922

DATE: 12-20-96

NUMBER OF PAGES: 6

Rachel Loftin said you needed a copy of this memo



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

December 11, 1996

MEMORANDUM

SUBJECT: Review of Field Sampling Plan (FSP) for Victoria Golf Course, Carson, California (Quality Assurance (QA) Program Document Control Number ZZCA090S96VSF3)

FROM: David R. Taylor, Ph.D., Chemist
Michael H. Mahoney, Chemist
Quality Assurance Program, PMD-3

THROUGH: Vance S. Fong, P.E., Chief
Quality Assurance Program, PMD-3

TO: Rachel Loftin, Site Assessment Manager
States Planning and Assessment Section, SFD-5

Revised pages of the subject Field Sampling Plan (FSP), prepared by the California Department of Toxic Substances Control (DTSC), Region 4, and dated December 6, 1996, were reviewed. The review was based on guidance provided in "Preparation of a U.S. EPA Region 9 Field Sampling Plan for EPA-Lead Superfund Projects," August 1993 (9QA-05-93) and on Quality Assurance (QA) Program comments provided to DTSC in a telephone conversation on September 18th and in a memorandum dated December 3rd, 1996.

DTSC indicates that a partially revised FSP and revised figures were provided to EPA separately. These documents were not available to the QA Program for review. In the future, it is recommended that a revised final FSP be submitted for review. Furthermore, the revised pages were received after 3 o'clock on Friday, December 6th, with the anticipated sampling to start the following Monday. This does not allow sufficient time for a complete review, discussions concerning unresolved issues, and release of laboratory assignments. It is recommended that the final FSP be submitted at least a week prior to sampling.

The issues raised previously relevant to data quality have all been addressed with one exception, which concerns sampling locations. This issue is discussed below. Several non-data generation issues were not addressed, but FSP approval is not contingent on their resolution. The FSP is approved. Comments from the December 3 memorandum are reproduced below in boldface

Ms. Rachel Loftin
December 11, 1996

type. An evaluation of the revised sections of the FSP follow in normal type.

Major Concerns

1. [General] Considering the high probability of cross-contamination between sites in this location; the exact role and location of background samples in this study should be discussed.

DTSC, in its cover memorandum acknowledges that a large number of sites are in the area which may contribute to groundwater contamination. The response discusses the role of "background" samples in the study which is primarily to discern differences with up-gradient and down-gradient data.

OK → This comment has been satisfactorily addressed.

2. [Section 3.3, Sampling Recommendations] Please include a review of the existing monitoring wells for their appropriateness to this sampling effort. Parameters which should be reviewed and documented include depth, screening interval, survey date, diameter, depth to groundwater and recharge rate.

OK → Data are provided on the existing groundwater wells. This comment has been satisfactorily addressed.

3. [Section 3.3.1, Soil Sampling] Sampling points 6 and 7 are referenced as "soil samples only." As these samples are in the center of the study area, and, therefore, most likely to be positive, a rationale should be presented which supports the lack of sampling for groundwater. Evaluating groundwater contamination and attribution are the stated purpose of this sampling event.

The information provided as well as discussions with DTSC personnel indicate that several factors were considered in the decision not to sample all locations for groundwater, including cost, potential time delays, and the relatively close proximity of other groundwater sampling locations.

The QA Program still recommends the collection of a groundwater sample at location 7, since this appears to be strategically located in the middle of the site. The QA Program agrees with DTSC that because wells on all sides of the site (except to the East where groundwater is unlikely to be flowing) will be sampled, it should be possible to determine the direction of groundwater flow. The groundwater flow direction should enable the contaminant contributions to or from the site to be assessed with some

Ms. Rachel Loftin
December 11, 1996

degree of certainty. However, if groundwater flow directions are ambiguous as predicted by the QA program, contaminant attribution to and from the site may be more difficult without groundwater data from site 7.

4. [Section 3.2, HRS Pathways] The entire air section is not clear, and needs to be expanded to better explain the purpose and rationale for its inclusion in the FSP. In this section air is mentioned as a possible pathway, however, no testing is planned because, "PW and SWM tests for subsurface methane at the site." The relationship between methane and other possible gases is not apparent from the this passage. DTSC may wish to forgo air testing at this time, while reserving the possibility of later testing. If the intent is to eliminate the air pathway due to current methane testing, then an additional explanation of the rational behind the decision should be included in the document.

ok → Air testing and air as a possible pathway are no longer being investigated. This comment no longer applies.

- 5A. [Section 5.2.3.2, Purging] To give accurate analyses it is recommended that all piezometers be purged prior to sampling.

ok → The revised FSP indicates that the piezometers will be purged. This comment has been satisfactorily addressed.

- 5B. The use of bailers to acquire samples should be justified. While there is no policy that states that the use of bailers should be avoided, the use of bailers for collecting volatile organic compound samples is discouraged. The surging and disturbance of the water column when using bailers causes volatilization of volatile organic compounds to occur.

ok → The FSP now includes considerable discussion concerning the sampling of wells, and documents the difficulty in using either a submersible pump (well diameter size) or a peristaltic pump (groundwater too deep). This comment has been satisfactorily addressed.

Other Concerns

1. [General] Although the determination of groundwater flow direction will be determined as part of this study, all figures should show the presumed groundwater flow direction.

Ms. Rachel Loftin
December 11, 1996

Although the overall presumed groundwater flow direction is described in the text, revised figures were not submitted to the QA Program for review. This issue is not considered critical to data quality.

[Section 2.4.1, Soil Sampling] Historical soil sampling is referenced for this site. To help assist in the current sampling effort, the previous sampling effort should be documented for number of samples, depths, types of analyses and results. This information should be presented using maps and a tabular format to better evaluate the current sampling effort.

No revised pages for this section were submitted for review. Section 3.2.1 also alludes to previous sampling; "to an unknown degree of accuracy and hazardous substances have been detected. Soils have been found to contain metals, volatile organic compounds (VOCs) and semivolatile compounds (SVOCs)." It is still recommended that the requested information, to the extent it is available, be documented in the FSP.

3. [Section 3.2, HRS Pathways] The last sentence for "Soil" states the following: "Soils have been found to contain metals, VOCs, and SVOCs above regulatory standards." Please state the regulatory standards which have been exceeded.

This comment has not been addressed.

4. [Section 3.3, HRS Pathways: Site Geologic and Hydrologic Conditions] There is no mention of a cap or surface liner for the site. Any backfill or cover will affect the soil sampling depth for this investigation. As soil sampling is going to occur at this site, sampling protocols should address this aspect of sampling procedures.

Information on the cover or backfill is indicated as being undocumented. Personal contacts indicate a five foot depth. The FSP indicates that field operations will be adjusted to avoid sampling fill. This comment has been adequately addressed.

5. [Section 3.3.2, Stratigraphic Survey] It is stated that cone penetrometer test (CPT) will be used to a depth of 100 feet or until equipment refusal. No procedure for sampling is outlined for refusal if it occurs before reaching ground water. Please outline a course of action for the field team under refusal conditions. Refusal is referenced several times in the course of the text. A similar procedure should be in place for all incidents of refusal.

Ms. Rachel Loftin
December 11, 1996

This comment was not addressed.

Comments

- 1A. [General] Chapter headings in the Table of Contents do not agree with the chapter headings in the body of the text.

de Since the overall FSP was not submitted for review, overall numbering could not be evaluated. This comment has no impact on data quality.

- 1B. The numbering sequence is incomplete with some sections given no sequence identification. Such as the section Soil on page 10 and Groundwater on page 11. The sequencing should be made consistent.

de These sections are now numbered. Since the overall FSP was not submitted for review, overall numbering could not be evaluated.

- 1C. The numbering sequence for chapter headings is not in order and should be corrected. Please see Sections 5.2 through Section 5.3 on pages 15 through 19.

de Since the overall FSP was not submitted for review, overall numbering could not be evaluated. This comment has no impact on data quality.

If you have any questions you can reach Michael Mahoney at (415) 744-1495 or Dave Taylor at (415) 744-1497.